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STANDARD DUTIES OF SOVIET MILITARY MEDICAL CORPS

(Extracted from Soviet Military Medical Academy textbook)

NOTE: This article is a compilation of data collected in Germany by Surgeon-Lt Col Mojo Enryo during his trip to Europe in February 1941 and sent to this school. Surgeon-Maj Naito Ryoichi, instructor at the Army Medical College, prepared and revised this data.

Sanitation Operations for Personnel: Decontamination and Delousing

Sanitation operations in respect to personnel must be fully carried out at all times, even during the brief rest periods for troops. They include baths and showers for personnel, decontamination of clothing, etc. They are designed not only for cleansing the body and clothing but also for delousing, and in field operations serve as vital prophylactic measures against exanthematous typhus and relapsing fever. Should these diseases break out, they must be wiped out by the most energetic means.

Sanitation operations also include decontamination of personnel exposed to poison gases, their clothing, and replacement of underwear. Mobile shower units and decontamination vehicles are assigned to army units, wherever conditions permit, to expedite sanitation operations.

The mobile shower unit is included in the table of organization of army units and takes part in all activities; it is also utilized in unpopulated areas where there are no water and fuel supplies.

The Soviet Army has two types of mobile shower units and decontamination vehicles, the horse-drawn type and the motorized type. Sanitation unit personnel must be familiar with the mechanical construction of this equipment and the techniques involved.

Horse-Drawn Steam-Formalin Decontamination Vehicle

This vehicle is used in decontamination of personnel and clothing with aldehyde-mixed steam. Temperature ranges from 60 to 65° C during the process.

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The vehicle has two rooms, a special room and a steam room. The special room has four sets of boxes, double walls (the space between the walls is hollow), and two doors (one in the rear). The heating unit, valves, and chemicals are all attached to the boxes.

The steam room contains an evaporator, air and water storage tanks, sprayer, hose, pump, pressure gauge and chimney. There is a manometer on the wall which shows the temperature reading within the steam room.

The evaporator has double walls and contains a refrigerator with a hose coupling. Valve No 1 lets the water into the evaporator at the base, and steam is let out from the top. After the decontamination process in the steam room, the water returns to the storage tank. Air and water storage tanks each have a dual-purpose pipe line for intake and outlet of water.

Water is pumped through the valve into the storage tank to facilitate circulation of water. This process compresses the air within the water storage tank, and this compression in turn forces the water into the evaporator when the water is drawn.

The sprayer is attached to the upper section of the room, and steam is let into the sprayer from the base through valve No 4. A tin container is attached above the sprayer.

This tin container holds 225 - 250 cm of formalin.

Technique

Water flows through a hose and a wire screen and then into the storage tank. It is then forced through another valve into the evaporator by pressure (this pressure is registered on the manometer).

The water is then converted into steam in the evaporator. The steam can be regulated.

A thermometer and a pressure gauge are attached to register the steam volume. Valve No 3 releases the steam for decontamination of the articles and room. Valve No 1 releases the formalin and ammonia into the sprayer. The working capacity for clothing is 15 to 18 pieces (top coat with sleeve, fatigue clothing with collar and trousers).

Decontamination time is 30 - 35 minutes.

If necessary, this decontamination vehicle can also be used for delousing in which case formalin is omitted and steam alone is applied at a temperature of 80° C.

The working capacity for delousing of clothing is 18 to 25 pieces.

Delousing time is generally 30 - 40 minutes, although the time element depends on the volume of clothing to be deloused.

Motorized Decontamination Vehicle

A 1½-ton truck pulls this steam-formalin decontamination vehicle, whose mechanical construction is identical to the horse-drawn type except that it is larger.

Standard working capacity for clothing decontamination is 24 pieces; for delousing, 42 pieces.

Some decontamination vehicles are equipped with Pfleuge's decontaminators and are used in the decontamination of barracks with formalin. These decontaminators consist of a generator and decontaminant storage tanks for such chemicals as formalin, carbolic acid, naphthalene, etc.

Dry Heat Decontaminator

The dry-heat room can be filled with hot air and is used for delousing. The technique for this type of decontaminator is identical to that for the steam room.

The working capacity of this room for clothing decontamination is 16 pieces for 45 minutes; in winter, 50 minutes.

The temperature within this decontamination room must be more than 100° C.

The temperature for decontamination of damp clothing is 60 - 70° C.

The temperature of this heating room must be checked and properly regulated whenever the room is in use.

Mountain units are equipped with light-weight pack-type dry heaters. This heater is identical to the steam room except in the construction of the heating apparatus and is crated and packed on two horses.

The working capacity of this type for clothing decontamination is 6 to 8 pieces.

The technique is identical to that of the steam-room type.

Requirements in Sanitation Operations (Organizational)

A so-called walk-through shower provides for showers and decontaminators for personnel engaged in field operations.

The primary requisite for the actual carrying out of sanitation operations is a wide, open area, vital for the distribution of shower units and decontaminators.

If a unit bivouacs in an inhabited area and lacks field equipment, troops can use available local showers. When available, however, permanent decontamination vehicles must be utilized.

Preventive Inoculation

Among prophylactic measures, protective inoculation in particular is of vital importance. In the Soviet Army it is observed in both peace and war. Protective inoculation is not absolute protection against contagious diseases, but it does improve resistance to contamination and render the progress of the disease milder. Strict observance of prophylactic measures for each individual as well as for a group must accompany protective inoculation.

The following protective inoculations are given in the Soviet Army: protective inoculation of mixed vaccine for typhoid, paratyphoid A and B, and tetanus; inoculation against dysentery; revaccination against variola and others, such as inoculation against cholera in case of an epidemic.

Each man must be trained to appreciate the significance of inoculation for protection against contagious diseases. The importance of immunity in each man and strict observance of personal hygiene in conjunction with inoculation must be stressed. Each unit commander must note in his medical book, the Soviet Army Therapeutic Manual, the type of protective inoculation and the date when it is to be administered.

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1. Mixed Vaccine

Mixed vaccine must be administered to all personnel and omitted only at the advice of a military surgeon. This mixed vaccine is administered to those with severe colds and gastrointestinal disease only after complete recovery. It is administered to those with excessive fatigue and severe symptoms only after these cases are properly treated and recovered.

A regular dose of quinine or atebrine is given the night before administration of mixed vaccine to chronic malaria cases.

Those inoculated within the past 4 months (with the necessary certificate for proof) are excused.

Protective inoculation of Soviet Army personnel with this mixed vaccine is carried out semiannually on mobilization day in autumn and before departure for billeting in spring (troops depart for maneuvers in spring).

The autumn inoculation is given in three series and the spring inoculation in two series. Dosages of the vaccines (typhoid and paratyphoid A and B vaccines) and anatoxins are as follows:

First Immunization (Autumn)

1st dose	(vaccine)	0.5 cc
	tetanus anatoxin	1.0 cc
2d dose	(vaccine)	1.0 cc
	tetanus anatoxin	---
3d dose	(vaccine)	1.0 cc
	tetanus anatoxin	2.0 cc

Second Immunization (Spring)

1st dose	(vaccine)	1.0 cc
	anatoxin	2.0 cc
2d dose	(vaccine)	1.0 cc
	anatoxin	---

The interval between inoculations is 10 days.

Protective inoculation is administered subcutaneously under strictly sterile conditions. Hypodermic needles must be sterilized by boiling prior to use.

The site of injection is preferably the postero-inferior scapular region or left shoulder. The skin surrounding the site of injection is painted with tincture of iodine. If the skin is not clean it must first be wiped with benzene, alcohol or ethyl alcohol.

Each man must take a bath prior to inoculation.

A mixed vaccine prepared with three different species of bacteria (typhoid, paratyphoid A and B, and tetanus anatoxin) is used in the prophylactic inoculation of personnel.

These three types of vaccines and the anatoxin are mixed in a sterile cup in the ratio of one part vaccine to two parts anatoxin. The solution prepared with these three types of vaccines is slightly turbid and precipitates if left standing. Therefore, vials and ampoules containing this solution must be shaken well before using.

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The tetanus anatoxin is yellowish and translucent.

Vaccines, anatoxins and other bacterial preparations must be kept in a dry room with room temperature equal to 8 - 10° C. This precaution must be taken particularly in winter because, once frozen, these preparations are unfit for use.

Inoculation with mixed vaccine will produce a reaction which causes mild discomfort but does not require any special treatment. Some rare cases will sometimes indicate a severe reaction with fever above 38° C accompanied by gastrointestinal symptoms (vomiting). In general these cases do not require treatment and will recover, although 1 - 2 days of rest are advisable. The site of injection becomes inflamed and swollen. However, this swelling disappears after 2 days, requiring no treatment.

Failure to observe strict sterile rules when giving injections will result in suppuration, subcutaneous phlegmon, etc.

2. Protective Inoculation Against Dysentery

Protective inoculation against dysentery is generally administered about the end of spring (15 May - 15 July) to all personnel. Immunization against dysentery is administered per os in solution or tablet form.

Vaccine in solution form is given in dosages of 10 cc per day for 3 days, before meals when the stomach is empty. Vaccine in the containers must be shaken well before use.

Vaccine in tablet form is also given; one tablet one hour before meals while the stomach is empty, for 3 days.

Vaccine in solution form must be kept in a dark dry room having a regulated temperature. This solution will keep for 18 months if properly preserved.

If kept according to the method prescribed above, vaccine in tablet form will keep for 10 years.

Ordinarily the dysenteric vaccine does not produce after effects, but rare cases indicating nausea, vomiting, diarrhea and abdominal pains are sometimes encountered. The most common reaction is headache.

As with mixed vaccine, protective inoculation against dysentery is not administered to those with colds, gastrointestinal disorders and other severe symptoms. The immunization method used for dysentery is given below.

Vaccine in solution form is measured in a graduate whose contents are poured into the cup of each man, who then drinks it.

Tablets are dispensed with a forceps of spoon.

Members of the Medical Corps participating in administration of this vaccine must also take this tablet with a glass of warm water.

3. Vaccination

Vaccination is administered systematically to all army personnel.

Each man is required to take a bath before vaccination. The vaccination site at the left shoulder must be thoroughly prepared, and the scarificator must be changed for each case. The scarificator must be sterilized by boiling, flame or immersion in alcohol.

The vaccine is transferred into sterile glassware and is then applied to the vaccination site.

The skin surrounding the vaccination site must be thoroughly prepared with ethyl alcohol or alcohol. The skin is then painted with mercuric chloride or carbolic acid solution. Tincture of iodine must not be used because it kills the virus of cowpox.

A scarificator is used in preparing the surface of the skin for application of the vaccine. The skin is scarificed in a 3 - 4 cm triangle, each side of which is up to 1 cm long. Then the scarified site is gently massaged. A deep scarification is inadvisable because it may cause hemorrhage which will wash away the vaccine.

No one should be allowed to wear clothes for 15 minutes after vaccination to avoid wiping off the vaccine.

A vaccine loses its effectiveness very rapidly if kept in a warm room. If kept in a room at 18° C for 20 - 30 days or above 18° C for several days, the vaccine must be considered unfit for use.

Special care must be exercised in preserving vaccines. Under field conditions it is best to keep vaccines under refrigeration; if this is impracticable, they should be stored in a cool hole.

4. Protective Inoculation Against Cholera

Protective inoculation against cholera depends on the program of the unit, but is always administered in case of an outbreak. Cholera inoculation is given whenever: (a) there is even a single incidence within the unit or among neighboring inhabitants, or (b) there is an indication that the water is contaminated with cholera vibrio.

Cholera inoculation requires a univalent vaccine. If this is not available a bivalent vaccine of typhoid and paratyphoid is used. If these vaccines cannot be injected subcutaneously (e.g., when in the front lines), anticholera tablets should be given.

The dosage of these cholera vaccines is:

Cholera Univalent Vaccine

1st dose	0.5 cc
2d dose	1.0 cc
3d dose	1.5 cc

Bivalent Vaccine of Typhoparatyphoid B

1st dose	1.0 cc
2d dose	2.0 cc
3d dose	2.0 cc

The interval between injections is 5 - 7 days.

A vaccine tablet is given once a day for 3 days.

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